



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/903,486	07/29/97	FORBES	303.326US1

MM21/0415
SCHWEGMAN LUNDBERG WOESSNER & KLUTH
P O BOX 2938
MINNEAPOLIS MN 55402

EXAMINER	
MINTEL, W	
ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 04/15/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/963486

Applicant(s)

Forbes

Examiner

William Mintel

Group Art Unit

2811

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☐ Responsive to communication(s) filed on _____.
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-21 is/are pending in the application.
- Of the above claim(s) 16-21 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-15 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 2+4 1/2
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

Art Unit: 2811

1. The disclosure is objected to because of the following informalities: The specification contains Grammatik or other errors. Examples are below. To be fully responsive to this action, applicant must make a bona fide attempt to correct any other errors. Page 5, line 11, omits "a" before "gate".

Appropriate correction is required.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

3. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Oyama (367).

5. In re claim 1, line 1, the English abstract at line 1 recites a transistor. In re claim 1, line 2, the abstract at line 6 recites source and drain regions. In re claim 1, line 3, the abstract at lines 2-3 recites a silicon carbide gate electrode. In re claim 8, the abstract at line 4 recites an insulating layer.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-7, 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oyama (367) in view of Halvis and Forbes (401).

Art Unit: 2811

8. Oyama is described above but the English abstract lacks explicit mention of polycrystalline or microcrystalline SiC. Halvis at column 2, lines 20-30 teaches use of a poly SiC gate to make the formation of the underlying gate oxide easier. Forbes at column 2, lines 9-10, teaches micro SiC as a good conductor. Therefore, in re claims 2 and 3 it would have been obvious because of Halvis and Forbes, for the above reasons, to use poly or micro SiC as the gate of Oyama. In re claims 4-5, the English abstract does not specifically mention channel type except to recite an N type substrate 1, but it is well known to one of ordinary skill that MOSFET's exist as PMOSFET's or NMOSFET's. In re claim 6, the abstract, line 3, of Halvis teaches 50% carbon. In re claims 9-10, column 3, line 5, of Forbes teaches a 100A oxide insulating layer. Claims 11-14 are rejected as per the above claims. In re claim 15, Forbes at column 2, lines 1-32, teaches use of a SiC FET in a memory array context.

9. Cited of interest for a SiC floating gate 14 is Forbes (104). Cited for a floating gate 4 with bandgap larger than Si is Ichikawa (828). Cited for a poly Si gate is Yamazaki. Cited for a SiC insulation layer is Aoyama. The remaining references submitted by applicant are characterized by the Exmr. as merely of background interest.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Mintel whose telephone number is (703) 308-4916. The examiner can normally be reached on Monday-Thursday from 8:30AM to 5:00PM.

Art Unit: 2811

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mintel/ds

04/12/99

William Mintel

William Mintel
Primary Examiner
4 11 2811